



May 2022

President Emeritus - Tom Scorsone, KC2FCP President - Bryan Jackson, W2RBJ Vice-President - Walt Snyder, N2WJR
 Secretary - Dave Smith, WA2WAP Treasurer, Don Mayotte, KB2CDX
 Board Members: David Jaegar, Jr., K2DEJ Russ Greenman, WB2LXC Steve VanSickle, WB2HPR

EGARA Election Brings New Secretary and Board Member

The 2022 club election was held during the regular April membership meeting, with Steve VanSickle, WB2HPR moving from Secretary to the Board of Directors. and Dave Smith, WA2WAP, replacing him as Secretary.

In addition, Bryan Jackson, W2RBJ, Walt Snyder, N2WJR, and Don Mayotte, KB2CDX, were unanimously re-elected as President, Vice President and Treasurer, respectively.

In order to assure that there was a quorum of members in good standing, this year's election also used online voting for those who were not able to attend the meeting.

Under changes approved by the members last year, election of the three board members was staggered, allowing one board position to be open each year. This year's opening was for the position held by Dave Gillette, KC2RPU, who served a one-year term as part of the staggered election schedule for the board. As the plan moves forward, new board members are elected to full three year terms.



**Dave Smith, WA2WAP
is the club's new
Secretary**

Next year, the board seat now held by David Jaegar, Jr., K2DEK will be open. In 2024, the board seat now held by Russ Greenman, WB2LXC will be on the ballot.

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Field Computing Unit is Topic for May Meeting

Interested in harnessing the power of computers for your Amateur Radio operations? Field Computing Units -- also know as FCU -- will be the topic of the club's May meeting.

Hisen Zhang will demonstrate this cyberdeck-style portable computing platform for field operations. The unit operates using a Raspberry Pi computer and with optional modules installed, FCUs have wide applications.

Whether for hams, preppers, hackers, or even professionals, they may find this project useful in their field radio operations.



Next Membership Meeting - 7 pm - Wednesday, May 11, 2022

Get On the Air with Parks On The Air!

EGARA's April membership meeting featured a presentation on an array of portable antennas used by Don Chittenden, N2USM, when he participates in the "Parks On The Air" program. POTA was created in 2016 to celebrate the 100th anniversary of the National Parks Service and was found to be so popular with hams that it still continues. Its goal is simple: to encourage POTA members to go out and operate their ham radios in the great outdoors. Complete information is at: <https://parksontheair.com>.

The program has both "Hunters" and "Activators" who operate from designated State and Federal Parks, and at certain National Historic sites and wildlife management areas.

"Activators" schedule a "Field Day" type event from an approved park location of their choosing, using the radio, antenna, power source, and mode they prefer. They can hike miles to the top of a mountain, deep into the woods, or simply operate from their vehicle or while sitting comfortably at a picnic table under a park pavilion. They can only work from one reference at a time. If you are in a park that is a sub-region of a larger park, you can use the reference of the sub-region, or you can also split your logs as you like for each park too. They must make a minimum of 10 QSOs for their activity to count toward a POTA activation -- and this must be done within the same day (using Zulu Time 00:00 – 23:59).

Meanwhile, "Hunters" may make QSO's from their Home, Mobile, or any location they wish -- they do not have to be within a designated Park. To make hunting easier, they can also use the POTA.US website at <https://parksontheair.com/> to find Activators that have been spotted and try to raise them. Hunters have no requirement to submit logs to gain credit, as the Activator does all the work and log submissions. The website also includes complete information about the program, the rules, and the ability to sign up as a participant.

Both the activators and hunters can earn many different awards. These awards are similar to the ARRL "Worked All States" awards, except there are no QSL cards, or card checking involved. The activator logs his or her contacts and simply creates an ADIF file of the log which is then sent to their regional director for upload to the POTA system. The awards are earned by making contacts and then sent electronically in an email which can be printed.

So, what are some of the best portable antennas to use, according to the club's antenna guru Don, N2USM?



The Buddipole:

This is a portable anodized aluminum antenna with arms, 2 multi-band coils (40m - 10m) with adjustable coil tap system (includes 3 removable taps, with coils premarked for 40, 30, 20, 17, 15, 12, and 10 meters -- 6 and 2 meters are configured without coils), 2 telescopic whips, the VersaTee™ with 3/8" x 24 adapters, choke balun with BNC/PL259 (removeable) adapter, 25' of MILSPEC coax, nylon "packcloth" carrying bag with stretch hook-and-loop strap, black thermoplastic carrying case, and operating manual. More information is at: <https://www.buddipole.com/buddipole.html>.



Wolfriver Coil:

Their primary coil, *The Silver Bullet 1000*, is mostly for mobile application by allowing a single antenna for multi-band operation. It is similar to the popular screwdriver antenna but at a greatly reduced cost and without complicated mechanical breakdown. While mobile installation is the dominate application for Wolfriver coils, they can be used for apartment dwellers, amateurs dealing with confined space or stealth antenna installation, portable applications, camping or anytime you need to load an antenna without the need of a tuner. Their web site has a variety of configurations available and is at: <https://www.wolfrivercoils.com/index.html>.

Other portable antenna systems to check out include the **Super Antenna** at: <http://newsuperantenna.com/> and the **Chameleon Antenna** at: <https://chameleonantenna.com>.

Want to Visit ARRL Headquarters and Work W1AW?



EGARA is considering a field trip for its members to the headquarters of the American Radio Relay League this summer and the chance to operate ARRL's W1AW station.

The League is located in Newington, Connecticut and is approximately two hours from the Capital District. The present plan make the trip sometime during the first week of May. Carpools would be set up for those members interested in making the trip.

Departure time would be approximately 7:30 am on a weekday, allowing members to arrive during the daily visitor operating hours for W1AW -- which run from 10 AM to 12 PM and again from 1 PM to 3:45 PM.

The plan is to give club members a chance to both tour the ARRL headquarters and operate the W1AW station.

The trip would include a tour of the ARRL headquarters and lunch. The plan would be to return by 5 pm.

A similar trip a few years ago was very successful and several members have asked about scheduling another one.

Further details will be discussed during the club's May membership meeting, including information about ARRL's availability to host the group.

FCC Software Glitch Delays Amateur Licenses

Test applicants who recently passed their FCC Amateur Radio exams found processing of their delayed after the Commission's new "fee-based" computer system crashed. The ARRL Volunteer Examiner Coordinator (VEC) reported that the FCC Universal Licensing System (ULS) electronic batch filing (EBF) system went down midday Tuesday, April 19, 2022 -- the same day the FCC application fees became effective for amateur radio.

The following day, the FCC asked Volunteer Examiners to refrain from submitting any test session or application files while it worked to resolve the issue. ARRL VEC Manager Maria Somma, AB1FM, said the FCC did not estimate how long the system would be down, and some applications were sent to the system before the FCC notice was released to the VEs.

Four days later, on Saturday, April 23rd, the FCC announced that the system was back up and running normally and that submission of license applications could resume, including any that were backlogged. It was unclear how quickly they would be processed, although prior to the crash new licenses would appear within a few days.

Although existing hams who take tests to upgrade their licenses do not have to pay the new \$35 fee imposed by the FCC, first-time Amateur applicants are required to submit their payments before their licenses will be issued. Under the new plan, they must pay it within ten days after receiving a notification from the FCC by email. Hams who submit a change of address are also exempt from the fee, as are changes to club station trustees. Hams seeking vanity call signs must also now pay the fee,



The History of Ham Radio: Call and Card

Chris Codella, W2PA, author, John Pelham, W1JA, editor, Phil Johnson, W2SQ, editor

(Editor's note: By special arrangement with the authors, Sidebands is pleased to present this multi-part series on the history of ham radio. Subsequent chapters will be published in future monthly editions of the newsletter)

CQ, used as a general call for initiating a contact, took time to become an acceptable practice in the early years. Serious operators frowned on its use, mostly because it had been used to excess in the old days among the “little boys with squeak boxes,” usually in exceedingly long and sparsely identified calls.

In March 1921, QST announced an operating event called the “ARRL CQ Party,” to be run on April Fools Day. The writer (unnamed) asserted that CQ meant that “some bird is causing unnecessary QRM,” and that the ARRL Operating Department had “declared war on ‘CQ’ as an outgrown antique.” Beginning at midnight, participants were to call CQ with high power and “any old speed” according to a schedule that allocated a three-minute time slot to each call district. Thus everyone who was not transmitting could see how many districts they could hear, which might actually be useful. This would end at 12:30 a.m. when all stations in all districts would call simultaneously, nonsensical by design. “Maybe Mars will hear us,” they wrote.

The party really did run and was enjoyed for the farce it was.

“There were almost as many ‘HI’s floating around as there were CQs showing that most of the gang appreciated the spirit of the thing,” noted ARRL secretary Kenneth Warner. But its other purpose was to discourage calling CQ during relay schedules, and to “to show up the foolishness of the unholy amount of CQ-ing that has gone on every night all over the country, causing untold interference that is so unnecessary. Persistent CQ-ing is nothing less than a bad habit, accomplishes nothing good whatever, and merely breaks up communication in nearby states,” scolded Warner.

CQ had its origin in maritime wireless, used by ships seeking nearby stations to which they could pass messages. So, although calling CQ was labeled “a nuisance” by Warner, he also allowed that it might still have a legitimate, similar use in traffic handling. Nevertheless, interminably long CQs with hardly a call sign mentioned were bad form and just caused QRM, he cautioned.

Over the next two years, either attitudes and behavior had changed, or the use of CQ became too pervasive to do anything about, or both. In late 1923, Warner wrote yet again about the practice, calling it “a great evil in amateur radio today.” But he equivocated, admitting that there were amateurs on both sides of the issue—those who use CQ all the time and those who believe that its use is cause for license revocation—and that neither was right.

He cited cases where it had value: briefly announcing one’s presence on the air, and directional calls for a particular region with the intention of sending traffic. The abuse of CQ was the problem. Some amateurs would call long CQs just to get listeners to send a reception report card. This, he asserted, was “unjustified abuse of the ether.” (One wonders if there was such a thing as justified abuse of the ether.) But long CQs, in hopes of starting a QSO, were also nonsensical, argued Warner, since they often had the opposite effect, and “good amateurs refuse to answer the long drawn-out CQ of an ether-mutilator, and oftener than not nobody will stay with you while you consume ten minutes calling—there is too much on the air that is interesting.”

A good example of proper CQing was 6ZZ, who was considered a gateway station, key in connecting regions for relaying message traffic. It therefore made sense for him to announce when he was available. He used a single CQ and a single call for such an announcement, and then would stand by for fifteen seconds before trying again. “Let’s be more reasonable about this thing, fellows, and stop abusing CQ,” implored Warner.



Cartoon from July 1925 QST

(continued on page 5)

History of Ham Radio...

F. M. Keefe, aboard the S.S. Tomalva in Rotterdam, wrote with humor to add his own voice to the complaints about never-ending CQs. He regularly spent time trying to copy calls so that he could contribute to the Calls Heard section of QST. But he had finally had enough:

“... after straining my ears, patience, and vocabulary t’other night while following an Endless Chain of See Kews that never signed, or faded just before the psychological moment, I decided that things ain’t what they used to be. Having cast my decision, I proceeded to cast the remains of the Remington at the ship’s cat, (don’t possess a Corona as per 6ZZ). Missed the cat and hit the 3rd mate on the knee and he QSLd with a right hook to the jaw that would have done credit to Jack Dollarkys himself. He has no sense of humor, I guess, ‘cause how was I to know it was his lap the cat was sleeping on? But that’s a different story.”

According to Keefe, ships in the Atlantic had less time to listen the further east they sailed, due to the time difference and the ever earlier dawn. Thus his frustration arose from wasting his precious listening time on CQ callers. He endorsed the idea that stations using long CQs should never be cited in Calls Heard to discourage their “ceaseless, senseless, endless CQ-ing.”

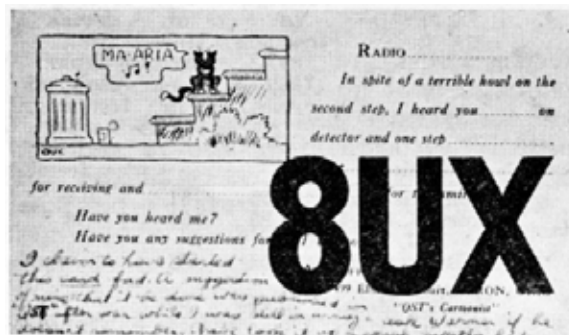
While some amateurs continued to shun its use and actively avoided answering stations calling CQ, others saw that it had a valid purpose. Traffic Manager Fred Schnell set out to establish guidelines for its use as a “standard ARRL practice” in early 1924. His concept still focused on handling message traffic rather than its present day use as a general call for a QSO. Its purpose, he stated, was to “indicate that a station wishes to communicate with another station...” meaning, “the calling station has traffic for some other station.” However, he facetiously acknowledged that in typical amateur radio use, “CQ has had a meaning which goes something like this: ‘I want some DX cards (which will never be QSLd); will somebody please answer who is at a distance greater than 2,000 miles so I can tell him nil hr drp crd cul 73 gn.’ It has degenerated into the call of the DX-Card Hound who seldom acknowledges receipt of a report card.”

The guidelines Schnell set forth had mostly to do with timing—never call CQ too long, listen for at least five minutes before calling, and do not call CQ more than once or twice in fifteen minutes. Three CQs and three call signs was the standard format he suggested. And it was to be used to announce that you were ready to receive traffic. If you had traffic to clear you should first listen for a station already on the air located closer to the message’s destination. If none was heard, a directional CQ was called for, as in “CQ north” or “CQ Washington.”

From the earliest days, hams used postcards to send reception reports to fellow amateurs. Two-way contacts were not always possible and this was one way to let station operators know their transmitters were being heard. The reverse case also happened. An operator who saw his station’s call sign listed in the Calls Heard section of QST would send a card to the listed receiving station inquiring about its receiving setup. In both cases a reply was expected but not nearly often enough sent. Unanswered QSLs was a frequent complaint even back then.

The practice of sending reports by postcard dates back at least as early as 1916 when first mentioned by Edward Andrews, 3TQ, in a letter to QST. Andrews wrote how very valuable a reception report by postcard really was, and commented that he had never seen it mentioned in QST. In agreement, the editor suggested this was a great way to keep amateurs in touch with each other and better understand the range of their signals.

Carl D. (Don) Hoffman, 8UX, had been drawing cartoons for QST since the fourth issue when he signed 8ADU, his pre-war call. In between, Hoffman served in the Military Intelligence Service, Radio division. He had set out to be a cartoonist and attended an art school for a while before quitting to open a radio store, then sold it to work for the Republic Electric Company. He was also the editor of a radio column in the Akron, Ohio newspaper. (continued on page 8)



Hoffman's QSL card for 8UX

EGARA April Meeting Minutes

- The April meeting of the EĞARA was called to order at 7:08. There were 21 members in attendance;
- President Bryan Jackson, W2RBJ welcomed everyone, followed by a round-robin introduction.
- Pizza and beverages were offered. Thanks to Tim Antonacci for bringing cookies!
- A raffle was offered and \$46 in ticket sales was collected. Thanks to everyone who bought tickets.
- A new member from France has joined EĞARA. He is Michel LaGrot, F3OA and \$15 dues collected;
- A quorum of members in good standing was present, and the annual election was conducted. This year members unable to attend the meeting were able to vote online.
- The slate of officers was unopposed and approved by the membership unanimously;
- President: Bryan Jackson, W2RBJ; Vice President: Walt Snyder, N2WJR; Treasurer: Don Mayotte, KB2CDX; Secretary: Dave Smith WA2WAP were voted in;
- There were two candidates for the open position on the EĞARA Board. Steve VanSickle, WB2HPR, was elected to the three year term;
- A call was made for volunteers for the Hamfest on August 27th. The club will also meet in July and August to discuss the event and prepare;
- Field Day was discussed and will be held at the lodge. Three stations will operate, including Dave Smith, WA2WAP operating digital. Members were asked to consider when they would like to operate. Sign ups will take place at the May meeting. Member with Technician licenses were reminded they can operate at this event when working with higher class operators. This will allow members come and learn about HF, SSB and digital operations;
- Lawn maintenance at the Lodge will commence soon and volunteers will be needed. Emails will advise in advance when the work is scheduled;
- Items for sale, purchase or swap can be listed for free in Sidebands, the club newsletter. Please submit them to Bryan Jackson at W2RBJ@outlook.com;
- Following the business meeting, Don Chittenden-N2USM Did a antenna presentation along with helpful hints for POTA and SOTA .
- The meeting was adjourned at 8:15 PM.
- Submitted by Dave Smith, WA2WAP - Secretary



Lend a Hand if You Can!

The Troy Amateur Radio Association -- TARA -- needs a hand with communications for two upcoming events. Both require 2 meter HT radios.

Six volunteers are needed for the CDPHP corporate challenge run on Thursday May 19 at 6 pm. Two are also needed for the Watervliet Memorial Day parade on Monday, May 30 at 10 am.

If you are available to help, contact Karen Smith, KS2O by email at: vicepresident@n2ty.org or by phone at: 518-273-6594.

On the Beam News & Notes

Busy Hurricane Season Forecast for Atlantic

A new extended range forecast anticipates an above-average hurricane season this year in the Atlantic. The outlook means Amateur Radio operators should be prepared in case they are needed for emergency communications.

The outlook by Colorado State University indicates the current weak La Niña conditions look fairly likely to transition to neutral by this summer/fall, but the odds of a significant El Niño seem unlikely. Sea surface temperatures averaged across the eastern and central tropical Atlantic are currently near average, while Caribbean and subtropical Atlantic sea surface temperatures are warmer than normal.

As a result, CSU anticipates an above-average probability for major hurricanes making landfall along the continental United States coastline and in the Caribbean. As is the case with all hurricane seasons, hams in coastal areas are reminded that it only takes one hurricane making landfall to make it an active season for them. Those located inland should also recognize the potential for high winds, heavy rainfalls, and damage to infrastructure, including communication systems.

Lessons Learned

A Community Emergency Response Team -- or CERT -- recently held an emergency exercise in Pleasant Hill, California that responded to a simulated earthquake. Of all the trained CERT volunteers in the city, only a fraction had their amateur radio license. Most CERT members had Family Radio Service (FRS) radios and a few had General Mobile Radio Service (GMRS) radios.

The first challenge was facilitating communications among the three-person search teams in the field (neighborhoods) and with their respective Incident Commanders (IC). The second challenge was enabling communications between the ICs and the Emergency Operations Center located at the police department. That was solved by using a two meter VHF Amateur repeater to relay messages. Although the emergency exercise went fairly well, a number of lessons were learned. Among them:

- More training on message composition is needed, with the goal of keeping messages short and concise, and using phonetics when necessary.
- Message prioritization: More training is needed on what information needs to be communicated and to whom.
- More training is needed on how to make ham handhelds more effective. The typical "rubber duck" antenna can be easily upgraded to boost effectiveness, by using a longer antenna, a portable J-pole antenna, a mag-mount antenna with a 1/4 or 5/8 wavelength whip, etc.
- The FRS/GMRS radios experienced some interference from other conversations that were not part of the exercise. Protocols to respond to this issue need to be developed, such as having radio operators move to a secondary channel.
- A study needs to determine how to effectively recruit more CERT members into the ham community and capture their interest in emergency communications.
- The message form needs to be upgraded to make it more intuitive, with as many check-the-box options as possible for efficiency and standardization.

These lessons are likely applicable to almost any Amateur Radio emergency communications plan.



CERT member James Lowe, KN6IKD, takes down a message during the Pleasant Hills, California earthquake drill.

The History of Ham Radio...

Hoffman wrote a letter, published in the August 1919 issue of QST, that mentioned “using post cards to let the other fellow know you heard his signals.” Despite the 1916 letter from 3TQ, QST credited Hoffman with originating the post card QSL idea. He had also suggested what information a report form should contain. Hoffman had been sending such cards before the war (perhaps that’s really why he got the credit, not his 1919 letter) and received many thanks from hams whose stations he heard. As “inventor” of the QSL card, although it was not yet called that, “This letter was the beginning of the idea that has,” by early 1924, “developed to the point where every amateur station has its walls filled with these printed post cards,” wrote the editor.

The attribution stuck, and in September, Howard S. Pyle, 8ST, wrote about standards for Amateur DX Report Cards, which he called “the international fad that 8UX started.” Pyle argued that the only basic pieces of information that really should appear on cards were the call sign and address of the sender, the time and date of the received transmission or QSO, and “possibly also the wavelength.” Furthermore, he asserted that information about antennas and equipment was superfluous. And besides, it was better to leave blanks for such things since they changed so frequently.

Clearly a minimalist, fancy design was something Pyle just could not fathom or tolerate. He criticized the use of pale colors, pointing out that they do not photograph well in (black and white printed) magazines. And using lots of colors and flourishes was best left to those with some actual artistic talent, lest you “make yourself and your station ridiculous to the fraternity.” Besides, single color cards were less costly, too.

Lastly, he criticized “near-funny” cards, writing that, “there are actual born humorists in the world but judging from the cards [that he had seen], there are surprisingly few in the amateur fraternity while the efforts of the would-be’s are rather disgusting. Avoid cheapening your card by a display of vaudeville humor” (whereas cheapening its appearance by using all one color was apparently fine).

Bah, humbug, he didn’t add.

Want to Help During Emergencies? Join ARES!

The Amateur Radio Emergency Service® (ARES) consists of licensed amateurs who have voluntarily registered their qualifications and equipment, with their local ARES leadership, for communications duty in the public service when disaster strikes.

Every licensed amateur, regardless of membership in ARRL or any other local or national organization is eligible to apply for membership in ARES. Training may be required or desired to participate fully in ARES. Please inquire at the local level for specific information. Because ARES is an amateur radio program, only licensed radio amateurs are eligible for membership. The possession of emergency-powered equipment is desirable, but is not a requirement for membership.

How to Get Involved in ARES: Rensselaer County ARES/RACES is an organization of Amateur Radio operators dedicated to supplying alternative or backup communications in time of need for the citizens of Rensselaer County New York. Meetings are held on the third Thursday of every month at the North Greenbush Town Office Building located at Douglas St. and Main Ave. in Wynantskill, NY at 7 PM.

A weekly training net is held every Thursday (except the third Thursday of every month) This net is held on the 147.18 Repeater at 7:30 PM. Information and a membership applications may be downloaded online at: <https://www.k2ren.com>. EGARA member Mike Shanahan, WO2H, can also answer questions. His email is: mshanaha@nycap.rr.com.



Using Phonetics to Improve Communications

By Doug Mansor, WA8UWV

If you've been a ham for a few years, you are probably aware of the phonetic alphabet and have used it or at least have heard it being used on the air. As a new ham, you might have encountered the phonetic alphabet while studying for the test but stashed it away in the back of your mind for later study if needed.

The phonetic alphabet we use as hams is sometimes referred to as the NATO phonetic alphabet, and is considered the standard for general use on the air. It consists of words that represent corresponding letters of the alphabet. It is important to use this standard to prevent being misunderstood on the air, such as when giving your call sign, location, or name to a rare DX station or any station under noisy conditions.

It may be fun to create a unique set of phonetics to represent your call sign, but that is not likely to improve communication. When the standard phonetics are used, you will eventually learn to associate that word with the corresponding letter. It's the same mechanism that is used to interpret Morse code. Instead of thinking of "dit dit dah dit" as the letter "F," you simply hear "F" when that code is presented. So, instead of hearing the word "bravo," you would actually hear the letter "B." If the other station uses nonstandard words to represent the letters in their call sign, you would have to take the time to think how each word is spelled and then what the first letter is. By the time you have accomplished all that, you will have missed the next two words (letters). For example, my call is WA8UWV. If I say, "Whiskey Alpha Eight Uniform Whiskey Victor," it would be readily understood. I say, "We all ate ugly white vegetables," it would take while to translate.

When checking into a net, the Net Control Station (NCS) is often required to report the call signs of stations reporting in. If a letter of the reporting station's call is misinterpreted, the NCS report will be incorrect. In regard to the Platinum Coast Amateur Radio Society (PCARS) net, where ten check-ins for each week in a row will entitle you to a certificate, an error in reporting your call might cause a disqualification.

How easy is it for a letter to be misunderstood? I have often mistaken similar sounding letters.

As an example, the following groups of letters tend to sound similar.

Sounds Alike: BCDEGPTVZ AJK QUW IY SX

This group of letters tend to have unique sounds and are less likely to be mistaken.

Unique Sounding: FHLMNOR

As you can see, more letters have the potential to be mistaken than not. The results are highly dependent on the enunciation practiced by the speaker and radio conditions. Using phonetics can make things much easier for your contacts to copy.

NATO Phonetic Alphabet

A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliett	W	Whiskey
K	Kilo	X	X-ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

Sky High: Mohawk Valley Hams Help Students Track Their Weather Balloons

By Andrew Pugliese, The Leader-Herald

Once a weather balloon is launched – payload attached – Gloversville Middle School science teacher Chris Murphy is behind the wheel, ready to drive to wherever the landing site might be. In the backseat are students following the airship on computers and punching in data that helps determine his directions.

The advisor for the school district's High Altitude Achievement club has been going on these adventures with students since 2013, and ham radio operators along the route and someone at a home base help direct, too. The experience varies from a car caravan to a single vehicle, and from students on a second or third launch to their very first. The seventeenth, and most recent launch, on March 17 was, however, a first. It was the beginning of a launching era including eighth graders in the experience.

"I was pulling a lot of juniors and seniors and the next year they're gone. And so I lost all of my experience," Murphy said. "So I started bringing them in younger, from ninth grade. And I started thinking to myself, 'You know what, I can bring in an eighth grader, an eighth grader can do it, they can do it, they can learn quickly.'"

Anna Pettit and Blaze Conye-Gillen were the two 13 year olds at the lift off in Blodgett Mills in Cortland County, and then Murphy's co-pilots. Normally, Murphy said, a balloon can reach over 100,000 feet at its apex and the group tries to target Canajoharie as the landing spot for the balloon. From wherever they let go, they usually have time to go grab a meal, get back in the car and get to the site by the time of touchdown. On the 17th, the balloon burst at 87,000 feet and Pettit and Coyne-Gillen had to begin calculating its descent rate while still on the move.



An image taken by the camera attached to the weather balloon sent up on March 17 by the Gloversville Enlarged School District's High Altitude Achievement Club.

Their teacher said it was probably wind, or maybe the balloon was overfilled, but really it could have been a bunch of different things. However it happened, they were not headed for a place as close to home anymore, it would be Cherry Valley, and the journey was about to become even more exciting.

"That's my rush is listening to them. Hearing them in the car, you know, with doing the data, because that's what it's all about," Murphy said. "They're actually functionally doing things that they probably would have never done in class. And they're doing it on the road with a phone.

"And it's every two minutes, we get a ping. And so they are my eyes and ears because I cannot when I'm driving, I need to pay attention to the road. Because I do have two 13 year olds in the car."

Prior to launch day, the older students help Murphy with work related to piecing together the payload. The most recent one included QR code cards sent to Teachers in Space, a nonprofit focused on stimulating student interest in STEM learning by providing teachers with space experiments and industry connections, from students at different schools in New York – scanned at launch and recovery – and a prototype of the Serenity satellite to be put into orbit by FireFly Aerospace, which contained a 30-sensor microcomputer and two cameras.

(continued on page 11)

Sky High...

Throughout the years of the club, it has been a jumping off point for Gloversville students to recognize passions for science, technology, engineering and mathematics careers. Murphy can easily reflect and think of former students chasing those dreams, including 2016 graduate Austin Reese, now working on his master's at Cornell.

Reese took a Teachers in Space trip to Nevada with Murphy, director of High Altitude Balloon Operations for the organization, during the spring of his senior year. While there, the then-18 year old stunned a retired NASA engineer, according to Murphy, by quickly helping to design a piece that still to this day flies in the Perlan glider.

The proud teacher sees no reason why current students can't reach the same heights as alumni, especially as new opportunities arise. In December, the club launched a satellite on a Firefly rocket called Alpha. That launch, like so many firsts, did not make it into space. But, the Gloversville crew and its satellite have their spot reserved already on Alpha Two, and the QR code cards from the balloon launch will make the trip, too.

"As they move up through the years, they'll see how close we are in Gloversville to being, you know, on rockets," Murphy said, referencing his younger students. "I mean, no offense, our experiment [is] going on a rocket – granted an old one, but that doesn't mean that these two can't come up with something that is going to ride on the next rocket."

Pettit joined the club in September and, for her, there's just something about building the satellite, which was her responsibility on launch day, that she finds more interesting.

"It's super cool...to think like that, we could do stuff like that," Pettit said. "It's cooler than, like, sitting at home and playing a video game. Like it's more fun to get out and do stuff like this than to just sit at home."

And two weeks before the launch, Coyne-Gillen might very well have planned to be sitting at his house that Thursday because wasn't part of the team until just days before the trip. According to Murphy, who is Coyne-Gillen's earth science teacher, the eighth grader had a build up of positive behavior points the school gives out to students. At the time, Murphy was offering a chance to just go along for the launch for a certain number of those points, and he asked Coyne-Gillen who said he was saving his points up. Well, the teacher followed up and asked why not just join the club, and the boy said he could do that.

Murphy ended up needing Coyne-Gillen to go, the student stepped up, and found that he really enjoyed holding and setting up the balloon at his first launch. He's motivated now to do more. One day he said, "I want to tie [off] the balloon!"

The 21-year veteran of the teaching profession has nine in the club these days, and each year some are not even working on the science. Some are in charge of photography or social media. There is a role for everyone. They build bonds and they build confidence in themselves

This is what it's all about according to him. He wants to get students involved.

Missed the Deadline for Paying 2022 Dues?

April is the normal deadline to renew your annual membership -- but it's never too late to support your club

You can also take advantage of an Egara multi-year discount! Remember too, it's easy to pay dues on-line, using the club's fast and secure PayPal account, or you may mail a check. Information on dues options and the PayPal link are at:

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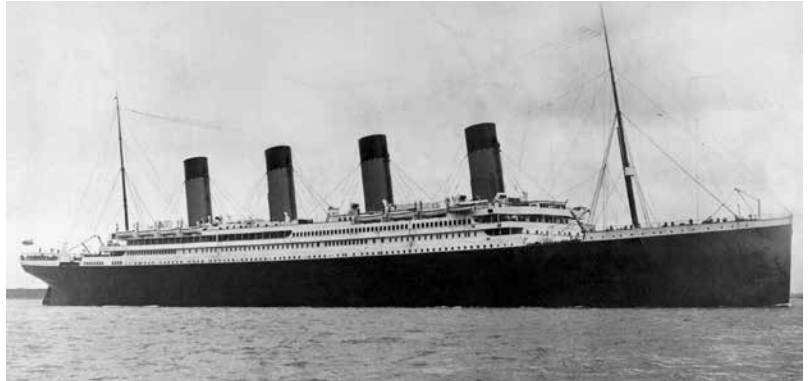
There has been no increase in dues for 2022.

NIST and the Titanic: How Her Sinking Improved Wireless Communications for Navigating the Sea

By Alex Boss, NIST Public Affairs

If you've seen the movie *Titanic* starring Kate Winslet and Leonardo DiCaprio, then you've watched the star-crossed lovers' untimely end and the tragic sinking of the Royal Mail Ship (RMS) *Titanic*. What the movie didn't show is that radio played a role in the ship's communication efforts — though it lacked standards that could have saved many more lives.

The tragedy of the *Titanic* raised awareness that improvements to wireless communication were needed and led to new regulations and legislation by Congress to improve wireless technology, radio equipment and standards for maritime navigation. Leading the charge to make this happen was the National Institute of Standards and Technology (NIST).



RMS *Titanic* -- Her loss in April 1912 resulted in improvements for the use of radio by ships at sea

The Role of Wireless Technology in the *Titanic* Tragedy

The RMS *Titanic* was a luxury passenger liner making its first trans-Atlantic voyage from Southampton, England, to New York City. The ship was an impressive 882 1/2 feet long, just a little shorter than the height of the Eiffel tower. In the late evening hours of April 14, 1912, the *Titanic* struck an iceberg about 400 miles off the coast of Newfoundland. By 2:20 a.m. on April 15, the ship had sunk, and only about 705 people survived. More than 1,500 people were lost.

At that time, the use of wireless systems, such as wireless telegraphs, on ships was relatively new. Passengers and crew could use these telegraphs to send messages back to land, and they played a role in ship operations like communicating between different areas of the ship. The technology relied on radio frequencies to transmit telegraph signals as coded messages without relying on telegraph lines.

The wireless telegraph on the *Titanic* was owned and operated by the Marconi Company and was considered one of the best systems in the world, with a range of up to 1,600 kilometers (1,000 miles). However, the system's electronics created so much "noise" that it disrupted the wireless systems of other ships in the area.

Throughout the day of April 14, four ships — all within 60 miles of the *Titanic* — had warned of icebergs in the area. The closest ship, the *Californian*, was 10 miles away when the *Titanic*'s wireless telegraphers sent out the SOS signal for help. Unfortunately, the *Californian*'s telegrapher had been rebuffed by the *Titanic*'s telegrapher earlier in the day for interfering with the *Titanic*'s private messages sent ashore and had shut down for the night. The *Carpathia*, which was 58 miles away, responded to the signal for help but didn't arrive until an hour after the *Titanic* had sunk.

The sinking of the *Titanic* also highlighted the lack of trained telegraphers. Since the wireless technology was relatively new, many of the ships' wireless telegraphers were inexperienced. They had a hard time catching signals sent to them, had difficulty relaying messages and were frequently sending repeats of their messages so they made sense on shore.

This disaster would spur government officials, researchers and lawmakers to address the shortcomings in wireless technology. International Radiotelegraph Conference and Radio Act of 1912

A few months after the *Titanic* sunk, the second International Radiotelegraph Conference was held in London to immediately address the technical aspects of radio. Two wavelengths were used at the time, and leaders of the conference agreed the 600-meter wavelength would be used solely for ships at sea. They also implemented rulings to reduce interference from spark transmitters, a popular type of radio transmitter on ships, which used electric sparks to generate brief pulses of radio waves.

(continued on page 13)

Improving Radio After Titanic's Loss...

Wireless telegraphers turned the transmitter on and off with each pulse to send messages in Morse code. The pulsed or damped radio waves diminish in strength as they travel, and the rate at which they decay is expressed in a quantity known as the decrement. The damped radio waves also have a wide bandwidth with continuous frequencies that diminish exponentially over time. When the measurement of decrement is high, the radio signal becomes broader, increasing the chance for interference from other signals with similar frequencies. The new ruling set lower limits for spark transmitters, allowing telegraphers to fine-tune or sharpen their receivers to catch the radio signal because it was on a narrower frequency band. The exception to the ruling was for SOS signals, so multiple parties could intercept them.

The rulings from the conference were implemented by Congress on July 23, 1912, through amendments to the 1910 Radio Ship Act. This resulted in the 1912 Radio Ship Act, which required an additional auxiliary power supply on ocean liners, and trained wireless telegraphers with at least two in charge of radio equipment. Congress also passed the 1912 Radio Act, which required licensing of commercial and amateur radio stations, minimizing interference communication between stations, addressing types of wavelengths used and prohibiting interference in radio communication, to name a few. The task of investigating how to implement these measures was given to NIST, known at the time as the National Bureau of Standards.

Kolster and the Decremeter

At the International Radiotelegraph Conference was the recently hired NIST research engineer Frederick A. Kolster. His first assignment was to attend the conference as an observer and technical adviser to a NIST official, Louis Winslow Austin, who was one of 12 U.S. delegates. Austin directed the Naval Radio Telegraphic Laboratory, housed and operated at NIST in Washington, D.C., which later became one of the founding units of the Naval Research Laboratory. Kolster also assisted Professor Arthur Gordon Webster of Clark University, who had a paper published at the conference about regulations on using radio communications as a safety aid in navigation.

At NIST, Kolster was tasked with designing a device to help ensure radio communications would not suffer interference from other electrical devices on ships. His device, called a "decrometer," measured the radio signal's rate of decay, and could be used by inspectors to determine that a ship was complying with the new regulation. The regulation led to the use of damped radio waves with a narrower frequency range that was less likely to cause interference with another ship's communications.

Kolster developed the original device between 1912 and 1914 and then designed a portable version that fit inside a suitcase-like structure, making it easier to move around. Once completed, the decrometer was accepted by the Department of Defense and the Bureau of Navigation, whose functions would later be absorbed by the U.S. Customs Service and the Coast Guard.

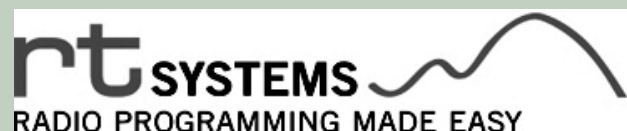
Other Inventions

During this time, Kolster also developed other instruments to aid in regulating maritime navigations and communications. The Bureau of Navigation needed a radio beacon system to help ships navigate in inclement weather, such as heavy fog or rainy conditions. Kolster designed an improved radio compass — the forerunner to modern aviation landing systems — that let a ship establish its current position by accurately figuring out the direction of signals coming from stations on land.

The technology was ready for deployment by 1915. However, the Bureau of Lighthouses, later absorbed into the U.S. Coast Guard, was reluctant to install the beacons until ships were equipped with the radio compasses. Most ship captains were hesitant to introduce more equipment out of fear that it would further clutter up their ships. It wasn't until around 1919 that an agreement was reached between the lighthouse managers and the ship captains, and the radio compass was officially approved by the U.S. Department of Defense and implemented.

Kolster wasn't the only NIST researcher working on maritime navigation. NIST researchers C.W. Waidner and Hobart Cutler Dickinson boarded Navy patrol boats in the summer of 1912 to investigate possible methods of detecting how close or far away icebergs were. One possible method seemed to focus on analyzing temperature variations of the seawater, but their research proved inconclusive. Later in the 1930s, a team of NIST researchers developed a salinity meter for the International Ice Patrol to help it locate icebergs. The sinking of the Titanic triggered immediate actions to prevent further tragedies at sea. Though it's not likely that a movie will be made about the safety regulations and laws that followed, NIST played a prominent role in developing the necessary standards and technology to support them.

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CALENDAR

May 11, 2022 - 7 pm - Regular monthly club meeting. Masonic Lodge, 710 Columbia Turnpike, East Greenbush, NY.

June 25-26 - Field Day 2022. Masonic Lodge, 710 Columbia Turnpike, East Greenbush, NY.

August 27, 2022 - Hamfest 2020, East Greenbush Town Park

Pro Tip: Mid Band Tuning

If you like to move around a lot on the HF bands, tuning your rig for the middle of a band can usually provide a decent match between your antenna and your radio.

So save yourself the time of retuning when you move elsewhere on the band you're working.

Use this handy chart of mid-band frequencies from 40 to 10 meters to tune your rig:

Mid-Band Phone (Voice) (G)eneral and (E)xtreme

- 40 Meters – 7.237 (G) 7.212 (E)
- 20 Meters – 14.287 (G) 14.262 (E)
 - 17 Meters – 18.139 (ALL)
- 15 Meters – 21.362 (G) 21.325 (E)
 - 12 Meters – 24.960 (ALL)
 - 10 Meters – 29.000 (ALL)



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- Interested in old WW1 or WW2 US Army Signal Corps straight keys and transceiver/transmitter receiver that was used to operate CW by the US Signal Corps from WW2 era;
- Interested in HF linear amplifier from any era such as Heathkit SB200;
- Also looking for Drake 4CW.
Contact: Justin, KG2RG at: kg2rg@hotmail.com

For Sale...

- IFR-1100S Service Monitor. With Spectrum Analyzer and Oscilloscope. Previously tested and calibrated.
- AM - FM, CTCSS Generator, In very good condition. \$700.00, offers welcome via email.

Contact John Maddalla,
WB2HZT at radiowizz@aol.com

- Heathkit DX 35 with VFO and PTT, \$150
- Heathkit DX 60 with VFO and PTT, \$150
- Kenwood 520 Transceiver \$225.00

Contact Tom at kc2fc@nycap.rr.com

- VIBROPLEX "Bug" semi-automatic key. Original "PRESENTATION" Model with Gold Plated baseplate escutcheon. Beautiful heavily chromed upper parts, bright red finger pieces, jeweled bearings. Lists for \$350 but you can own this beauty for only \$250 plus postage. In absolutely beautiful condition, this dazzling example of Vibroplex engineering will be supplied in a unique hard-shell protective carrying case.

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The East Greenbush Amateur Radio Association

Organized in 1998, by Bert Bruins, N2FPJ, (SK) and Chris Linck, N2NEH, the East Greenbush Amateur Radio Association, an ARRL affiliate, is committed to providing emergency services, educational programs, and operating resources to amateur radio operators and residents of the Capital Region of New York State. The club station is W2EGB. The club also has several VHF and UHF repeaters open to club members and the public.